BEST COPY

AVAILABLE

Approved For Release 2001/04/10 : CIA-RDP81B00879R001100030149-7

ILLEGIB

[redacted]

Approved For Release 2001/04/10 : CIA-RDP81B00879R001100030149-7

point arithmetic, and in consequence of the two-level memory organization any programmed floating point operation by means of a generalized interpretive routine is so slow as to be unfeasible for most running. However, it seems possible that in addition to including generators for fixed point operation a compiler routine might include generators for "in-line" floating point arithmetic that might be specified as the programmers option. Resultant running programs would presumably be far faster than corresponding programs run with an interpretive system. If feasible the compiler should make provision for floating point operation in this manner.

3. Automatic Program Segmentation and Overlay Control: Since it may be assumed that any productive program will normally exceed the capacity by a fairly large factor, it follows that it is imperative that the compiler itself rather than the programmer provide for the segmentation of the program and provide for the necessary overlay instructions in the running program. It is recognized that this assembly phase presents a very major problem and it is felt that to accomplish this end it may be necessary to accept a running time ratio of compiler produced programs to hand coded programs on the order of two or three to one. However, it would seem feasible to have the automatic segmentation control avoid splitting loops that can fit into the working storage area.

4. Departures from the Requirements Outlined Above: It is fully recognized that the construction of a compiling routine for any computer is a formidable task and that the two-level memory with very small working storage area of the Alwac III-S imposes many additional problems. These problems may well be such as cause major departures from the requirements that have been outlined. It is felt that a close liaison should be maintained with the producing organization with the idea in mind of continuous review of the problems encountered, the limitations that will result therefrom in the final product, time required, and the cost of the final product with a view to assessing these factors against other possible solutions (i.e. - possible acquisition of a machine for which a compiler routine is already in existence).